

REMARKS

In response to the above Office Action, claims 1-10 have been cancelled and claims 11-19 amended for clarity, to use the proper article where appropriate, to delete unnecessary language and to provide antecedent basis for various terms used in the claims.

As set forth in main claim 11, Applicants' invention relates to a delivery device that includes, inter alia:

a valve element made of an elastic material having a substantially ring-shaped valve body portion and a substantially ring-shaped thin-walled portion provided at a distal end of the valve element, said valve body portion being fixed in the outlet portion while said thin-walled portion extends through said outlet orifice of said outlet portion and is exposed to an outside of the outlet portion; and

a cylindrical valve element support member disposed inside of the ring-shaped thin-walled portion of the valve element to close the outlet orifice together with said valve element.

A device of this type is described in the "Fifth Delivery Device" beginning on page 46, line 20 of the specification and is shown in FIGS. 33-40. With reference to these figures, the valve element (93) has a ring-shaped body portion (93b) and a substantially ring-shaped thin-walled portion (93a) provided at a distal end of the element. The valve body portion (93b) of the valve element is fixed in the outlet portion (91) of the device while the thin-walled portion (93a) extends through the outlet orifice (92) of the outlet portion and is exposed to an outside of the outlet portion.

Further, a cylindrical valve element support member (94a) is disposed inside of the ring-shaped thin-walled portion (93a) of the valve element (93) to close the outlet orifice (92) together with the valve element. See, for example, FIG. 33 where when no liquid pressure is applied to the thin-walled portion from an upstream side, the elastic material of the thin-walled portion (93a) of the valve element makes contact with the outer periphery of the support member (94a) and closes the outlet orifice of the delivery device.

On the other hand, when liquid pressure is applied to the upstream side of the thin-walled portion of the valve element, it undergoes expansive deformation to open the outlet orifice. See, for example, FIG. 38.

In the Office Action, the Examiner rejected claims 11-13 and 16-19 under 35 U.S.C. §102(b) for being anticipated by U.S. Patent No. 4,533,068 to Meierhoefer and claims 14 and 15 under 35 U.S.C. §103(a) for being obvious over Meierhoefer in view of U.S. Patent No. 5,360,145 to Guéret.

As noted above in claim 11, when the outlet orifice is closed, the ring-shaped thin-walled portion of the valve element makes contact with the outer periphery of the valve element support member located inside of it. Therefore, when the thin-walled portion is opened by the pressure of liquid, the thin-walled portion can expansively deform stably. As a result, variations in liquid pressure are suppressed, and the proper quantity of liquid can be delivered at a more constant liquid pressure.

On the other hand, in Meierhoefer, the rubber duck bill valve element 28 having lips 46, 48 closes the exit port 16 simply by the lips sealing against each other due to the elastic properties of the rubber valve. There is no member located inside of or

between the lips 46, 48 of valve element 28, the outer periphery of which would contact the lips to close the exit port, as set forth in Applicants' claims.

Accordingly, it is not seen how claim 11 or claims 12, 13 and 16-19 dependent therefrom can be anticipated by Meierhoefer. Its withdrawal as a ground of rejection under §102(b) is therefore requested.

Nor should Applicants claimed structure be considered an obvious modification of Meierhoefer, because when the duck bill valve of the reference is opened by liquid pressure being applied thereto, the open form of the duck bill valve will vary. As a result, the liquid pressure is not stable, and then it is difficult to deliver the liquid at a constant liquid pressure.

Regarding dependent claims 14 and 15, it may be obvious to treat various parts of the claimed device with an antibacterial treatment in view of Gueret, but Gueret does not disclose what is missing in Meierhoefer, so it is believed these claims are patentable over the cited combination of references for the same reasons expressed above.

It is believed claims 11-19 are now in condition for allowance.

It would be appreciated if the Examiner would return an acknowledged copy of the Information Disclosure Statement filed February 6, 2008 in his next communication.


In view of the foregoing amendments and remarks, Applicants respectfully request reconsideration and reexamination of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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